



Greening Cleaning: Getting Science to the Shop



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Wayne Ziegler

Army Research Laboratory

maintaining the data needed, and c including suggestions for reducing	lection of information is estimated to completing and reviewing the collect this burden, to Washington Headqu uld be aware that notwithstanding ar DMB control number.	ion of information. Send comments arters Services, Directorate for Infor	regarding this burden estimate mation Operations and Reports	or any other aspect of the property of the contract of the con	his collection of information, Highway, Suite 1204, Arlington	
1. REPORT DATE MAY 2009		2. REPORT TYPE		3. DATES COVE	ered 9 to 00-00-2009	
4. TITLE AND SUBTITLE				5a. CONTRACT NUMBER		
Greening Cleaning: Getting Science to the Shop				5b. GRANT NUMBER		
				5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)				5d. PROJECT NUMBER		
				5e. TASK NUMBER		
				5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Army Research Laboratory,2800 Powder Mill Road,Adelphi,MD,20783				8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)		
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAIL Approved for publ	LABILITY STATEMENT ic release; distributi	on unlimited				
13. SUPPLEMENTARY NO Presented at the Ni held 4-7 May 2009	DIA Environment, I	Energy Security & S	sustainability (E2	S2) Symposi	um & Exhibition	
14. ABSTRACT						
15. SUBJECT TERMS						
16. SECURITY CLASSIFIC	17. LIMITATION OF	18. NUMBER	19a. NAME OF			
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified	Same as Report (SAR)	OF PAGES 9	RESPONSIBLE PERSON	

Report Documentation Page

Form Approved OMB No. 0704-0188

Implementing Alternatives

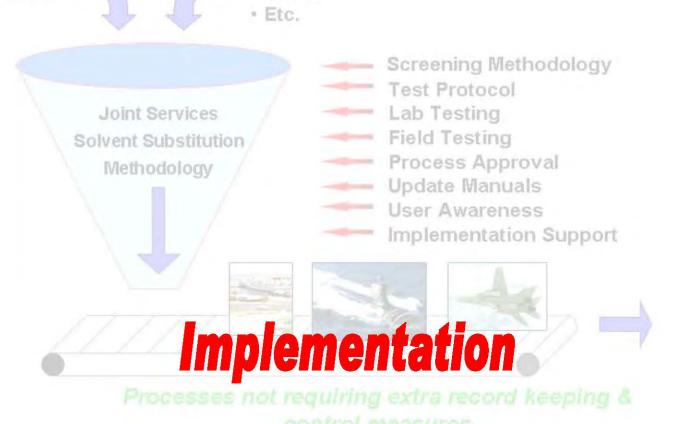
Ozone

- · Aircraft Maintenance
 · Ship Maintenance

 Consider the Constant of the Cons
- Facility Maintenance
- · Etc.

Partners

- · NAVSEA
- NAVAIR
- · Marine Corps
- Army
- Air Force
- NASA



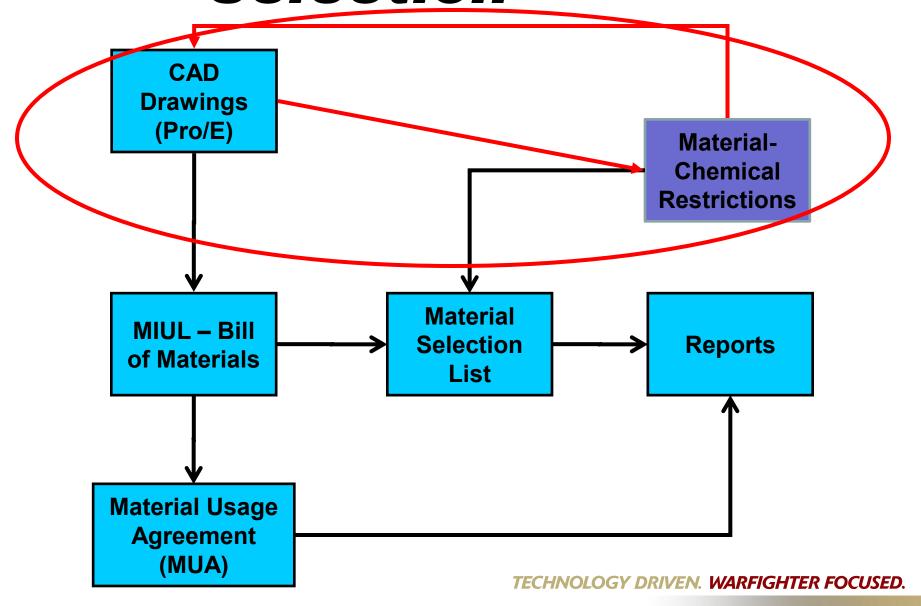
Basic Concepts

- All cleaning applications are not equivalent
- Define the cleaning process
- Regulations continue to evolve
- Focus on capability and cost

Keys to Success

- Define performance
- Pursue the possible
- Focus on implementation
- Engage the user & understand their perspective
- Grow champions

Influence Materials Selection



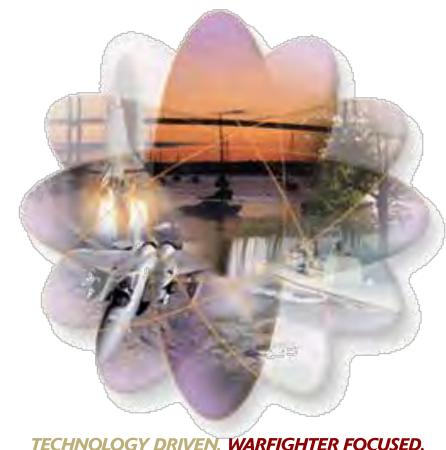
Provide Document Control

PERFORMANCE SPECIFICATION

CLEANER, GENERAL, FOR MILITARY SYSTEMS, LOW OR EXEMPT VOC, HAP-FREE



Communication Collaboration Coordination



JS3 Tools

- Methodology
- Information Exchanges
- Project Coordination
- Project Database

Summary

- Look forward
- Focus on capability & cost
- Be realistic
- Know your "customer"
- Put information in the right hands